(11) EP 1 138 985 A3

## (12)

### **EUROPEAN PATENT APPLICATION**

(88) Date of publication A3: 12.06.2002 Bulletin 2002/24

(51) Int Cl.7: **F16H 61/02** 

- (43) Date of publication A2: 04.10.2001 Bulletin 2001/40
- (21) Application number: 01105698.3
- (22) Date of filing: 07.03.2001
- (84) Designated Contracting States:

  AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU

  MC NL PT SE TR

  Designated Extension States:

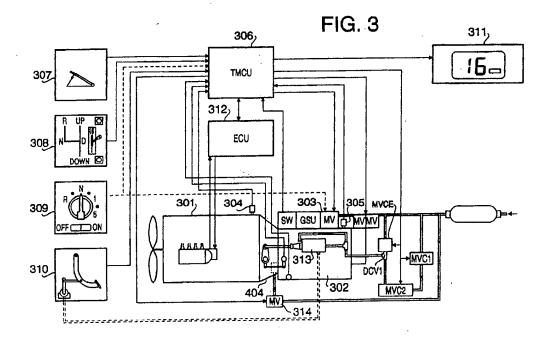
  AL LT LV MK RO SI
- (30) Priority: 31.03.2000 JP 2000101284
- (71) Applicant: ISUZU MOTORS LIMITED Shinagawa-ku, Tokyo (JP)

- (72) Inventor: Nishimura, Noboyuki, c/o Isuzu Motors Limited Kawasaki-shi, Kanagawa (JP)
- (74) Representative: Schaumburg, Thoenes & Thurn Postfach 86 07 48 81634 München (DE)

### (54) Vehicle transmission

(57) A vehicle transmission (302) is equipped with an actuator (303) for shifting the transmission and a controller (306) for issuing a command to the actuator (303) to control a shifting operation of the transmission (302). A vehicle speed sensor (305) detects a speed of a vehicle, and a gear position sensor detects a current gear

position of the transmission (302). The controller (306) stores at least two start gears higher a lowest gear of the transmission beforehand, and selects one start gear when starting a vehicle. The controller (306) selects the start gear based on whether the vehicle tows another vehicle or not.





# **EUROPEAN SEARCH REPORT**

Application Number EP 01 10 5698

`atacan	Citation of document with the	Relevant	CLASSIFICATION OF THE	
Category	of relevant passa		to claim	APPLICATION (InLCI.7)
X	EP 0 681 121 A (EATO 8 November 1995 (199	ON CORP)	1,2,9, 10,13,20	F16H61/02
	* column 9, line 21	- column 11, line 18;	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	
	figure 4 *		2.6	
Y			3-6, 14-17	
Y	DE 29 52 204 A (AUD: 25 June 1981 (1981-	[ NSU AUTO UNION AG)	3-6,  14-17	
	* the whole document		17 1/	
v	DE 100 20 027 A /7A		1,2,13	
X	DE 198 39 837 A (ZAI FRIEDRICHSHAFEN) 9 I	ankaurabkik March 2000 (2000–03–09)		
A			3,14	
	* claims 1-6; figure	2 <b>4</b> .		
X	US 5 984 828 A (HUB		1,2,10,	}
	16 November 1999 (1	999-11-16) - column 4, line 29 *	13	
X	US 5 761 628 A (DED- 2 June 1998 (1998-0	OW WARREN R ET AL)	1,10,13	TECHNICAL FIELDS SEARCHED (IM.CI.7
	* column 7, line 53	- column 8, line 7;		F16H
	figure 3 *			
Α	US 4 850 249 A (KIR	STEIN GERHARD)	1-6,	
	25 July 1989 (1989- * the whole documen		13-17	
	* the whole document			
A	EP 0 787 930 A (EAT		1-6, 13-17	
j	6 August 1997 (1997 * column 1, line 31	-u8-u6) - line 40 *	13-17	
	* column 1, line 31 * column 3, line 27	- line 34 *		
		-/		
		•		
				·
	The present search report has	been drawn up for all claims		
	Place of search	Date of completion of the search	<del>-1</del>	Ехапіяны
	THE HAGUE	22 April 2002	Va	n Prooijen, T
1	CATEGORY OF CITED DOCUMENTS	T : theory or princi E : earlier patent o	locument, but put	invention dished on, or
Y:pa	rticularly relevant if taken alone rticularly relevant if combined with another	efter the filing of the comment cites	in the applicatio	
A:te	cument of the same category chnological background on-written disclosure	L : document clied		
	ermediate document	document	Justine Pattorn 1001	,, _,,, <del>,,</del>



# **EUROPEAN SEARCH REPORT**

Application Number EP 01 10 5698

——————————————————————————————————————	DOCUMENTS CONSIDERED	<del></del>		
Category	Citation of document with Indicatio of relevant passages	n, where appropriate,	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.CI.7)
D,A	PATENT ABSTRACTS OF JAP vol. 1995, no. 11, 26 December 1995 (1995- & JP 07 208590 A (HINO: 11 August 1995 (1995-08 * abstract *	12-26) MOTORS LTD),	1,13	
				TECHNICAL FIELDS SEARCHED (Int.CI.7)
	The present search report has been dr			
	THE HAGUE	Date of completion of the search 22 Apr 11 2002	Van	Examiner Proofjen, T
CATEGORY OF CITED DOCUMENTS  X: particularly relevant if taken alone Y: particularly relevant if combined with another document of the same category A: technological background		T : theory or princi E : earlier patent d after the filting of D : document cited L : document cited	vention	
O: non-	-written disclosure mediate document	& : member of the document	same patent family,	corresponding

## ANNEX TO THE EUROPEAN SEARCH REPORT ON EUROPEAN PATENT APPLICATION NO.

EP 01 10 5698

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

22-04-2002

	Patent document cited in search rep		Publication date		Patent family member(s)	,	Publication date
FP	0681121	A	08-11-1995	AT	194029 T	•	15-07-2000
	OOOTILI			CA	2147288 A		06-11-1995
				CN	1123231 A		29-05-1996
				CN	1278493 A	•	03-01-2001
				DE	69517555 D		27-07-2000
				DE	69517555 T		08-02-2001
				EP	0681121 A		08-11-1995
				ES	2148435 T	-	16-10-2000
				JP	7301320 A		14-11-1995
~				US	5527237 A	· 	18-06-1996
DE	2952204	Α	25-06-1981	DE	2952204 A	\1 	25-06-1981
DE	19839837	Α	09-03-2000	DE	19839837 A		09-03-2000
				BR	9912608 <i>A</i>		02-05-2001
				WO	0014436 A		16-03-2000
				EP	1112455 <i>A</i>	\1 	04-07-2001
US	5984828	Α	16-11-1999	ΑU	2902799 A	4	11-10-1999
				DE	19983049 7	Γ0	02-08-2001
				SE	0003294 A	4	16-11-2000
				WO	9947836	<b>A1</b>	23-09-1999
				US	6151978 /	4	28-11-2000
US	5761628	Α	02-06-1998	JP	B210498 A	4	20-08-1996
US	4850249	A	25-07-1989	DE	3703234		18-08-1988
				GB	2200957 /	A , B	17-08-1988
EP	0787930	Α	06-08-1997	US	5678453		21-10-1997
				BR	9700170 /		11-08-1998
				EP	0787930 <i>I</i>		06-08-1997
				JP	9210194 /	A 	12-08-1997
	07208590	Α	11-08-1995	NONE			

© For more details about this annex : see Official Journal of the European Patent Office, No. 12/82